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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,331	06/19/2006	Orit Kollet	30694/41508	8331

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EXAMINER	
KIM, TAEYOON	

ART UNIT	PAPER NUMBER
1651	

NOTIFICATION DATE	DELIVERY MODE
01/10/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/552,331	KOLLET ET AL.	
	Examiner	Art Unit	
	Taeyoon Kim	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 November 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-37 and 40-75* is/are pending in the application.

4a) Of the above claim(s) *11-35 and 47-74* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *36,37,40-46 and 75* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendment and response filed on 11/2/2010 has been received and entered into the case.

Claims 1-10, 38 and 39 are canceled, claim 75 is newly added, claims 11-35 and 47-74 have been withdrawn from consideration as being drawn to non-elected subject matter, and Claims 36, 37, 40-46 and 75 have been considered on the merits. All arguments have been fully considered.

Claim Rejections - 35 USC § 112

The claim rejection under 35 U.S.C.§112, 1st par., new matter rejection, has been withdrawn due to the amendment.

Claim Rejections - 35 USC § 112 – New Rejection

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 36, 37 and 40-46 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The factors to be considered in determining whether undue experimentation is required are summarized in In re Wands, 858 F.2d 731, 737, 8 USPQd 1400, 1404 (Fed. Cir. 1988) (a) the breadth of the claims; (b) the nature of the invention; (c) the state of the prior art; (d) the level of

one of ordinary skill; (e) the level of predictability in the art; (f) the amount of direction provided by the inventor; (g) the existence of working examples; and (h) the quantity of experimentation needed to make or use the invention based on the content of the disclosure. While all of these factors are considered, a sufficient number are discussed below so as to create a prima facie case.

The instant claims are directed to the method of generating stem cells suitable for transplantation by exposing the stem cells to HGF alone followed by isolating stem cells having CXCR4 levels above a predetermined threshold. Thus, it is interpreted that HGF alone would necessarily induce CXCR4 levels above a predetermined threshold considering the predetermined threshold at the level of the control (the stem cells without exposure to HGF).

According to the specification (p.36, lines 9-17), it is understood that the stem cells upon exposure of HGF alone show induction in forming of actin-based protrusions in the CD34+ cells, whereas the combination of SCF and HGF promoted lamellipodia formation, a phenotype distinct from that observed with SCF or HGF alone, and it appears that CXCR4 up-regulation was associated with the cytoskeletal rearrangements (i.e. lamellipodia formation) based on the teaching of Figure 1. This disclosure indicates that the exposure of the stem cells with both SCF and HGF would induce the expression of CXCR4 whereas HGF or SCF alone would not significantly increase CXCR4 expression.

Furthermore, CXCR4 upregulation enhanced the stem cell's chemotactic response to SDF-1 (Figure 1b), and the specification clearly discloses that HGF did not induce chemotaxis of human progenitors alone (p.36, line 14). These teachings suggest that HGF alone cannot induce CXCR4 up-regulation.

Still further, the cancelled claim 38 was directed to the additional step of exposing the cells to growth factors and/or cytokines capable of increasing CXCR4 expression.

Therefore, it is concluded that HGF alone cannot up-regulate CXCR4 expression, and SCF is required to induce up-regulation of CXCR4 in the stem cells.

Considering that HGF alone would not up-regulate CXCR4 expression, the stem cells treated with or without HGF (control) would not be different in the level of CXCR4 expression, and it is considered that a person of ordinary skill in the art would not be enabled to isolate stem cells having CXCR4 levels "above" a predetermined threshold when the threshold is set to be higher than CXCR4 level of the stem cells without HGF treatment (i.e. control) since HGF alone would not induce CXCR4 expression.

Thus, based on the above discussion, the current claims are considered not enabling a person of ordinary skill in the art to make the invention.

Claim Rejections - 35 USC § 103

The claim rejection under 35 U.S.C.§103 has been withdrawn due to the amendment.

Claim Rejections - 35 USC § 103 – New Rejection

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 75 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weimar et al. (of record) in view of Kollet et al. (2001, Blood; of record) in view of in further view of Forbes et al.

(of record), Devine et al. (of record) and Shi et al. (of record).

The instant claim discloses the transitional phrase of "consisting essentially of". M.P.E.P. § 2111.03 clearly indicates that the transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention. In re Herz, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976) (emphasis in original). "A 'consisting essentially of' claim occupies a middle ground between closed claims that are written in a consisting of' format and fully open claims that are drafted in a 'comprising' format." PPG Industries v. Guardian Industries, 156 F.3d 1351, 1354, 48 USPQ2d 1351, 1353-54 (Fed. Cir. 1998), et al. For the purposes of searching for and applying prior art under 35 U.S.C. §§ 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising." If an applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention. In re De Lajarte, 337 F.2d 870, 143 USPQ 256 (CCPA 1964) et al. Since the specification in this case does not particularly point out the basic and novel characteristics of the claimed composition, "consisting essentially of" in claim 75 has been interpreted as "comprising" for the purpose of art rejections.

Weimar et al. teach a method of exposing CD34+ hematopoietic stem cells (HSCs) to HGF and IL-6 (see entire document; Table 2 at p.889).

Weimar et al. do not teach the step of isolating stem cells having CXCR4.

Kollet et al. teach a method of isolating $CD34^+/CD38^-/CXCR4^+$ HSCs by flow cytometry (FACS) after treating $CD34^+/CD38^-$ or $CD34^+/CD38^{-/low}$ HSCs with IL-6 (see Materials and Methods). Kollet et al. teach that CXCR4 mediates rapid and efficient homing of $CD34^+/CD38^-$ HSCs or $CD34^+/CD38^{-/low}$ HSCs (see whole document).

It would have been obvious for the person of ordinary skill in the art at the time the invention was made to isolate CXCR4 positive stem cells from the CD34+ cells treated with HGF and IL-6 taught by Weimar et al.

The skilled artisan would have been motivated to make such a modification because Kollet et al. teach that IL-6 treatment, which increases CXCR4 expression, also increases migration and homing potential (p.3287, right col.), and suggest that the method provides a novel approach to improve the outcome of clinical stem cell transplantation by enhancing homing and repopulation with cytokines (p. 3290), and therefore, a person of ordinary skill in the art would recognize the cells exposed to HGF and IL-6, which inherently express increased CXCR4 would be suitable for transplantation.

The person of ordinary skill in the art would have had a reasonable expectation of success in combining the step of exposing HSCs of Kollet et al. to HGF as taught by Weimar et al.

Therefore, the invention as a whole would have been prima facie obvious to a person of ordinary skill at the time the invention was made.

Conclusion

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taeyoon Kim whose telephone number is (571)272-9041. The examiner can normally be reached on 8:00 am - 5:00 pm ET (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on 571-272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Taeyoon Kim/
Primary Examiner, Art Unit 1651